GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA

UNSTARRED QUESTION NO:3220
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Seismic Zoning
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Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether the Bureau of Indian Standards (BIS) has classified the country into four major groups as per macro seismic zoning map of the country;

(b) if so, the details thereof, city/townwise;

(c) whether the Government has released a detailed report on "seismic hazard microzonation" on major cities that fall in the different seismic zones across the country recently;

(d) if so, the factors that are taken into account before finalizing the buildings/ localities which are vulnerable; and

(e) the steps taken/being taken by the Government to minimize the risk of life as well as property during earthquakes?

Answer

THE MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (SHRI Y. S. CHOWDARY)
(a) Yes Madam.

(b) Bureau of Indian Standard [IS 1983 (Part I):2002] has grouped the country into four seismic zones viz. Zone-II, Zone-III, Zone-IV and Zone-V. Of these, Zone V is seismically the most prone region with higher incidence of activities of earthquakes and Zone II is the least prone region with lower incidents of activities of earthquakes.

Broadly, Zone-V comprises of entire northeastern India, parts of Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Rann of Kutch in Gujarat, part of North Bihar and Andaman & Nicobar islands. Zone-IV covers remaining parts of Jammu & Kashmir and Himachal Pradesh, Union Territory of Delhi, Sikkim, northern parts of Uttar Pradesh, Bihar and West Bengal, parts of Gujarat and small portions of Maharashtra near the west coast and Rajasthan. Zone-III comprises of Kerala, Goa, Lakshadweep islands, remaining parts of Uttar Pradesh, Gujarat and West Bengal, parts of Punjab, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Chhatisgarh, Maharashtra, Orissa, parts of Telangana, parts of Andhra Pradesh, Tamilnadu and Karnataka. Zone-II covers remaining parts of the country.

Important towns/urban areas in India, falling in seismic zones II, III, IV and V are in Annexure-I.

(c) The government has released detailed report on Seismic hazard microzonation of National Capital Territory (NCT) Delhi and Kolkata only.

(d) The factors which were considered at sites for generation of seismic hazard index are as under;

â€¢ Peak ground acceleration at surface
â€¢ amplification factor
â€¢ Liquefaction potential
â€¢ Engineering bedrock depth
â€¢ Site classification based on shear wave velocity
â€¢ Predominant frequency
â€¢ Geology and geomorphology

Based on above study, urban areas are divided into four hazard zones, namely; such as Least, Moderate, High and Very High.

(e) Bureau of Indian Standards (BIS) has published several guidelines and building codes for construction of earthquake resistant structures and for retrofitting of existing buildings. These guidelines are widely used by various administrative regulatory authorities responsible for ensuring the design and construction of earthquake resistant structures in various states.

National Disaster Management Authority (NDMA), Ministry of Home Affairs (MHA), Ministry of Earth Sciences and other state Disaster Management Authorities, have also taken up various initiatives to educate and enhance awareness amongst general public and school children on the general aspects of earthquakes, their impacts and measures to mitigate losses caused by them. A National Disaster Response Force (NDRF) is also functional under the general superintendence, direction and control of the NDMA for the purpose of specialized response to natural and man-made disasters.